

METHOD AND APPARATUS FOR PREPARING ALUMINUM NITRIDE

**ABSTRACT OF THE INVENTION**

A method and an apparatus for preparing aluminum nitride are disclosed. The method for preparing aluminum nitride is first to prepare a reactant-containing body filled with admixtures of aluminum powder, a diluent (aluminum nitride powder) and nitrogen-containing solid compound, the reactant-containing body having an ignition portion, a propagating portion, a sustaining portion and an ending portion. Thereafter, the reactant-containing body is placed on a base having through holes in a reaction chamber, and preheated to a predetermined temperature for a predetermined period of time. Then, a re-circulating nitrogen gas is introduced through the reactant-containing body, and coolant is re-circulated between an inner wall and an outer wall of the reaction chamber, and then the ignition portion is ignited to perform a combustion synthesis process, thereby preparing the aluminum nitride, thereby preparing the aluminum nitride. The apparatus for preparing aluminum nitride comprises a reaction chamber having an inner wall and an outer wall, wherein a coolant is re-circulated between the inner wall and the outer wall; a preheating device; a nitrogen re-circulation system; and an igniting device.